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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/988,485

11/20/2001

Mark E. Tuttle

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EXAMINER

LEE, BENJAMIN C

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 02/03/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,485

Applicant(s)

TUTTLE, MARK E.

Examiner

Benjamin C. Lee

Art Unit

2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 69-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 69-92 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: _____

Response to Amendment

Claims Status

1. Claims 69-92 are pending.

Claim Rejections - 35 USC § 103

2. Claims 69-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. (US pat. #5,448,110) in view of Gunnarsson (US pat. #5,552,790).

- 1) In considering claim 69:

Tuttle et al. teaches a remote intelligent communication device for various applications including object/people location, tracking and inventory control, etc. (col. 1, lines 16-65 and col. 2, lines 20-24), comprising: an antenna (4, 5; col. 2, lines 49-55); an integrated circuit (32) coupled with the antenna and including a receiver (13); and an encapsulant (30, 42 according to Fig. 4D and the laminating/sealing process involved on col. 8, lines 51-55 and according to the Abstract; wherein such sealing constitutes an encapsulation and the layers 30, 32 constitute encapsulant according to col. 2, lines 35-36) configured to form a housing about the antenna and the integrated circuit, the encapsulant comprising an outermost planar surface of the housing (Fig. 4D);

Gunnarsson teaches that in a remote intelligent communication device (transponder for various applications such as access, passage recording and/or debiting according to col. 9, lines 29-41 and Figs. 7a-7c), using a ground plane (here called the reflection plane) spaced apart from and substantially electrically insulated from the antenna, but interacting with the antenna and provided on the same transponder housing (col. 9, lines 8-13), provides a more directive and

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enhanced communication signal and thus enhances communication and range (Abstract; Figs. 4a-4b; col. 1, lines col. 3, lines 34-43; col. 8, lines 14-18; col. 9, lines 8-15).

In view of the teachings by Tuttle et al. and Gunnarsson, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that for applications where a more directive communication signal is desired or at least acceptable (e.g. applications implementations shown in Figs. 7a-7b of Gunnarsson), a reflective ground plane such as taught by Gunnarsson can be included inside the encapsulated transceiver package such as taught by Tuttle et al. in order to increase communication range for a particular operating power level, so that sufficient communication range is achieved while requiring minimum operating power level, whereby the reflective ground plane is kept inside the encapsulated package so that the intended protection to the total package provided by the encapsulation is maintained.

2) In considering claim 70, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 69, including:

--the claimed said encapsulant encapsulates and contacts the antenna (Figs. 2, 3, 5a, 8, 9 & 11 of Tuttle et al.)

3) In considering claim 71, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 69, wherein:

Tuttle et al. teaches that reflective passive type transponders (backscattering modulation type) are known in the art, but recognizes that they are inefficient in operation, require large amounts of power to operate, and have a limited data handling capability (col. 1, lines 31-39) and are thus not chosen for the particular range of intended applications chosen, including airline baggage transport, delivery of parcels and mail, and inventory control, etc. (col. 2, lines 15-24),

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but instead chose a spread-spectrum modulator included in the integrated circuit (col. 7, lines 35-36 of Tuttle et al.).

However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that while back-scatter transponders have the above-mentioned limitations, they are perfectly acceptable for other intended applications. For examples, some location, tracking and inventory control applications require only a limited data handling capability such as identification data. Applications requiring shorter interrogation distance by arranging the close proximity of interrogators and object passage lowers the power level requirement. Reflective passive backscattering transponders are actually advantageous in that they are relatively cheaper and simpler in design compared with spread-spectrum modulations and requires no on-board battery, thus providing maintenance-free operation (no need to replace battery). Furthermore, the transponder of the combined teaching of Tuttle et al. and Gunnarsson that includes a reflective ground plane increases communication range at lower power level that helps to negate its power requirement concern mentioned in Tuttle et al. Thus, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that for applications where data handling capability offered by known back-scatter modulation is sufficient, a transponder such as taught by Tuttle et al. and Gunnarsson can be implemented by back-scatter modulation for its simpler design and cost-effective advantages, or due to factors such as availability of parts at the time of implementation.

4) In considering claim 72, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 69, including:

a) claimed power source (2, 3, 38, 40 of Tuttle et al.) coupled with the integrated circuit;

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except:

b) the claimed power source is also coupled to the ground plane.

However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the ground plane in a transponder such as taught by Tuttle et al. and Gunnarsson, by definition, is either at ground or at floating voltage, and that ground voltage of the ground plane can be implemented by connection/coupling to the ground terminal of the transponder circuit including the power source.

5) In considering claim 73, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 69, including:

--the claimed said encapsulant encapsulates and contacts the integrated circuit (Fig. 4D of Tuttle et al., whereby 58 is also interpreted as part of the encapsulant).

6) In considering claim 74, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 69, including:

--the claimed RFID communication circuitry (Figs. 1A-1B of Tuttle et al.)

7) In considering claims 75 and 78, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in the consideration of claims 69, 71 and 72, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that specifically a polling type interrogation can be used for interrogating a backscattering transponder such as taught by Tuttle et al. and Gunnarsson for applications where a plurality of different transponders are to be communicated with.

8) In considering claim 76, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 75, plus the disclosure corresponding to Fig. 4b and col. 9, lines 8-13 of Gunnarsson.)

9) In considering claim 77, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 75, plus the consideration of claim 74.

10) In considering claims 79-82, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in the consideration of claim 75, plus the formation steps of Tuttle et al. throughout the disclosure.

11) In considering claims 83, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in the consideration of claim 70, plus the formation steps of Tuttle et al. throughout the disclosure.

12) In considering claim 84, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 83, including:

--the claimed providing a dielectric layer intermediate the ground plane and antenna (col. 3, lines 9-16 and col. 9, lines 7-13 of Gunnarsson.)

13) In considering claims 85-86, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as claim 84, wherein:

a) the claimed printing at least one conductive connection through the dielectric layer while printing the antenna is obvious to one skilled in the art in light of the various formation steps taught/suggested by Tuttle et al.;

b) the claimed forming the housing to contact a portion of the dielectric layer is met by the sealing encapsulation of the whole transponder package of Tuttle et al. and Gunnarsson, whereby side edges of the housing encapsulation contacts the dielectric layer.

14) In considering claim 87, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 83, plus the consideration of claim 75 regarding the backscatter communication modulator of the integrated circuit.

15) In considering claims 88, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in the consideration of claim 74, plus the formation steps of Tuttle et al. throughout the disclosure.

16) In considering claim 89, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 88, plus the consideration of claim 75.

17) In considering claim 90, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 88, including:

the claimed flowing a flowable encapsulant (58 of Tuttle et al.) over the antenna and integrated circuit and curing the encapsulation (Figs. 2-3, 4c; col. 7, lines 51-52 and col. 8, lines 45-55 of Tuttle et al.)

3. Claims 91-92 rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al. in view of Gunnarsson and Alicot et al. (US pat. #5,859,587).

1) In considering claim 91, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 79, wherein:

Tuttle et al. teaches using printing to implement the antenna (Abstract), while Alicot et al. teaches the known use of conductive-ink-printing to implement an antenna for a transponder

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(col. 2, lines 7-9). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a known conductive ink-printing technique such as taught by Alicot et al. to implement the printed antenna of Tuttle et al. and Gunnarsson in order to provide a thin and consistent antenna trace for minimized size of the antenna and as a result the whole transponder housing for convenient carriage by monitored users/objects.

2) In considering claim 92, Tuttle et al. and Gunnarsson made obvious all of the claimed subject matter as in claim 83, wherein:

Tuttle et al. teaches using printing to implement the antenna (Abstract), while Alicot et al. teaches the known use of conductive-ink-printing to implement an antenna for a transponder (col. 2, lines 7-9). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use a known conductive ink-printing technique such as taught by Alicot et al. to implement the printed antenna of Tuttle et al. and Gunnarsson in order to provide a thin and consistent antenna trace for minimized size of the antenna and as a result the whole transponder housing for convenient carriage by monitored users/objects.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 69-92 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10-11, 15-16, 30-31, 36; 40-62 of U.S. Patent No. 6,339,385. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Individual or combination of the patented claims meet the current individual claims. For instances where combination of patented claims are involved, since the patented claims are directed to the same invention as direct or alternative embodiments, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that features of those patented claims are combinable to achieve their combined effect.

Response to Arguments

6. Applicant's arguments with respect to claims 69-92 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Tuner, US pat. #5,793,305

--A known back-scatter type transponder with improved power efficiency due to use of on-board oscillator (col. 5, lines 36-46).

2) Gloton et al., US pat. #5,569,879

--A similar transponder with ground plane (Figs. 8-9).

3) Lawrence et al., US pat. #5,815,120

--An antenna using ground plane.

4) Thomas et al., US pat. #5,497,168

--A known reflective ground plane usage in an antenna.

5) Landt, US pat. #4,853,705

--A known antenna with parallel ground plane (Fig. 4).

6) Kuntzsch, US pat. #6,359,588

--A known reflective use of ground plane for antenna (Fig. 19).

7) Isaacson et al., US pat. #5,708,419

--A similar transponder formation techniques.

8) Siikarla, US pat. #5,030,940

--A known use of ground plane for a transponder (Fig. 8).

9) Dumas et al., US pat. #4,631,546

--Another known antenna using ground plane.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (703) 306-4223.

The examiner can normally be reached on Mon -Fri 11:00Am-7:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (703) 308-6730. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

Benjamin C. Lee

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Primary Examiner
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B.L.

1/28/04